

CLAIMS

What is claimed is:

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1. A wireless communications system comprising:
 - 2 a transmitter circuit for transmitting information and generating a random
 - 3 identifier code having randomness that is derived from tolerances
 - 4 associated with components included in the transmitter circuit,
 - 5 wherein the random identifier code is included in the transmitted
 - 6 information.
- 1 2. The system of claim 1 wherein the transmitter circuit includes a
 - 2 microcontroller unit having a first I/O port, wherein in response to a code generating
 - 3 event being detected at the first I/O port, a process running in the microcontroller unit
 - 4 generates the random identifier code.
- 1 3. The system of claim 2 wherein the microcontroller unit includes a ROM
 - 2 for storing a set of instructions for carrying out the process.
- 1 4. The system of claim 2 wherein the microcontroller unit includes a RAM
 - 2 for storing the random identifier code generated by the process.
- 1 5. The system of claim 2 wherein the microcontroller unit includes an N-bit
 - 2 timer having an output value that is read in response to the code generating event being
 - 3 detected at the first I/O port.
- 1 6. The system of claim 5 wherein the output value of the N-bit timer is the
 - 2 random identifier code.
- 1 7. The system of claim 5 wherein the output value of the N-bit timer is
 - 2 applied to a random code generator algorithm stored in a ROM of the microcontroller
 - 3 unit, the random code generator algorithm for generating the random identifier code.
- 1 8. The system of claim 1 wherein the transmitter circuit further includes a
 - 2 storage area for storing the random identifier code.

1 9. The system of claim 1 wherein the transmitter circuit is included in one of
2 a wireless mouse, a wireless keyboard, a wireless joystick, a wireless trackball, a wireless
3 video camera and a receiver unit for receiving communications of a wireless device.

1 10. A wireless communications system comprising:
2 a transceiver circuit for transmitting and receiving information, and for
3 generating a random identifier code having randomness that is derived
4 from tolerances associated with components included in the
5 transceiver circuit, wherein the random identifier code is included in
6 the transmitted information.

1 11. The system of claim 10 wherein the transceiver circuit includes a
2 microcontroller unit having a first I/O port, wherein in response to a code generating
3 event being detected at the first I/O port, a process running in the microcontroller unit
4 generates the random identifier code.

1 12. The system of claim 11 wherein the microcontroller unit includes a ROM
2 for storing a set of instructions for carrying out the process.

1 13. The system of claim 11 wherein the microcontroller unit includes a RAM
2 for storing the random identifier code generated by the process.

1 14. The system of claim 11 wherein the microcontroller unit includes an N-bit
2 timer having an output value that is read in response to the code generating event being
3 detected at the first I/O port.

1 15. The system of claim 14 wherein the output value of the N-bit timer is the
2 random identifier code.

1 16. The system of claim 14 wherein the output value of the N-bit timer is
2 applied to a random code generator algorithm stored in a ROM of the microcontroller
3 unit, the random code generator algorithm for generating the random identifier code.

1 17. The system of claim 10 wherein the transceiver circuit further includes a
2 storage area for storing the random identifier code.

1 18. The system of claim 10 wherein the transceiver circuit is included in one
2 of a wireless mouse, a wireless keyboard, a wireless joystick, a wireless trackball, a
3 wireless video camera and a receiver unit for receiving communications of a wireless
4 device.

1 19. A method for distinguishing transmissions of a wireless transmitter, the
2 method comprising:

3 generating a random identifier code having randomness that is derived from
4 tolerances associated with components included in the wireless
5 transmitter; and

6 embedding the random identifier code in the transmissions of the wireless
7 transmitter.

1 20. The method of claim 19 further comprising:

2 storing the random identifier code in a storage area in the wireless transmitter.

1 21. The method of claim 19 wherein the wireless transmitter includes a
2 microcontroller unit having an I/O port, and the generating step is responsive to a code
3 generating event being detected at the I/O port.

1 22. The method of claim 21 wherein the microcontroller unit includes a ROM
2 for storing a set of instructions, and the generating step is carried out pursuant to the
3 instructions.

1 23. The method of claim 19 wherein the wireless transmitter is included in one
2 of a wireless mouse, a wireless keyboard, a wireless joystick, a wireless trackball, a
3 wireless video camera and a receiver unit for receiving communications of a wireless
4 device.

1 24. A method for distinguishing transmissions of a transceiver included in a
2 wireless communications system, the method comprising:

3 generating a random identifier code having randomness that is derived from
4 tolerances associated with components included in the transceiver; and
5 embedding the random identifier code in the transmissions of the transceiver.

1 25. The method of claim 24 further comprising:

2 storing the random identifier code in a storage area in the wireless transmitter.

1 26. The method of claim 24 wherein the wireless transmitter includes a
2 microcontroller unit having an I/O port, and the generating step is responsive to a code
3 generating event being detected at the I/O port.

1 27. The method of claim 26 wherein the microcontroller unit includes a ROM
2 for storing a set of instructions, and the generating step is carried out pursuant to the
3 instructions.

1 28. The method of claim 24 wherein the transceiver is included in one of a
2 wireless mouse, a wireless keyboard, a wireless joystick, a wireless trackball, a wireless
3 video camera and a receiver unit for receiving communications of a wireless device.

1 29. A computer-readable medium having instructions stored thereon which,
2 when executed by a processor included in a wireless communications system, cause the
3 processor to perform the steps of:

4 responsive to a code generating event, receiving data produced by the wireless
5 communications system, wherein the received data has randomness
6 that is derived from tolerances associated with components included in
7 the wireless communications system;

8 generating a random identifier code based on the received data; and

9 storing the random identifier code in a storage area included in the wireless
10 communications system.

1 30. The computer-readable medium of claim 29, wherein the steps performed
2 by the processor further comprise:

3 embedding the random identifier code in transmissions of the wireless
4 communications system.

1 31. The computer-readable medium of claim 29 wherein the wireless
2 communications system includes a microcontroller unit having an I/O port, and the code
3 generating event is detected at the I/O port.

1 32. A method for distinguishing transmissions of a wireless communications
2 device, wherein the wireless communications device has a microcontroller unit having an
3 I/O port coupled to an RC circuit having an output voltage that can be monitored by the
4 I/O port, the method comprising:

5 responsive to a triggering event, commanding the I/O port of the
6 microcontroller unit from a high impedance state to a low voltage state
7 thereby discharging the RC circuit;

8 resetting and starting an N-bit timer of the microcontroller unit, the N-bit
9 timer having an output;

10 commanding the I/O port from the low voltage state to the high impedance
11 state thereby charging the RC circuit;

12 monitoring the output voltage of the RC circuit at the I/O port;

13 responsive to the output voltage at the I/O port reaching a threshold voltage,
14 reading the output of the N-bit timer;

15 generating from the read output of the N-bit timer a random identifier code;

16 and

17 embedding the random identifier code in transmissions of the wireless
18 communications device.

1 33. A wireless communications system comprising:

2 a transmitter circuit for transmitting information and generating a random
3 identifier code having randomness that is derived from tolerances

4 associated with components included in the transmitter circuit,
5 wherein the random identifier code is included in the transmitted
6 information; and

7 a receiver circuit for, responsive to received information having the random
8 identifier code, reporting that received information to a receiver host.

1 34. An electronic communication system for generating a random identifier
2 code, the system comprising:

3 a first circuit for communicating information and generating a random
4 identifier code having randomness that is derived from tolerances
5 associated with components included in the first circuit; and

6 a second circuit communicatively coupled to the first circuit, the second
7 circuit for receiving the information communicated by first circuit,
8 wherein the information includes the random identifier code.

1 35. The system of claim 34 wherein the first circuit and the second circuit
2 each have a storage area for storing random identifier code.

1 36. A method for associating a transmitter with a receiver, wherein the
2 transmitter and the receiver are part of a wireless communications system, the method
3 comprising:

4 generating a random identifier code having randomness that is derived from
5 tolerances associated with components included in the wireless
6 communications system; and

7 assigning the random identifier code to the transmitter and the receiver
8 thereby creating a transmitter-receiver pair.

1 37. The method of claim 36 further comprising:

2 storing the random identifier code in a storage area in the transmitter; and

3 storing the random identifier code in a storage area in the receiver.

1 38. A wireless communications transmitter system comprising:

2 a transmitter circuit means for transmitting information and generating a
3 random identifier code having randomness that is derived from
4 tolerances associated with components included in the transmitter
5 circuit means, wherein the random identifier code is included in the
6 transmitted information.

1 39. A wireless communications system comprising:

2 a transceiver circuit means for transmitting and receiving information, and for
3 generating a random identifier code having randomness that is derived
4 from tolerances associated with components included in the
5 transceiver circuit means, wherein the random identifier code is
6 included in the transmitted information.

1 40. A method for distinguishing transmissions of a wireless transmitter means,
2 the method comprising:

3 generating a random identifier code having randomness that is derived from
4 tolerances associated with components included in the wireless
5 transmitter means; and
6 embedding the random identifier code in the transmissions of the wireless
7 transmitter means.

1 41. A method for distinguishing transmissions of a transceiver means included
2 in a wireless communications system, the method comprising:

3 generating a random identifier code having randomness that is derived from
4 tolerances associated with components included in the transceiver
5 means; and
6 embedding the random identifier code in the transmissions of the transceiver
7 means.

Added